Math 112
ReQuiz 09C

2022–04–19 (T)

Your name: _____

Exercise

(a) (2 pt) Show that $\lim_{x \to 0} \dfrac{x^2 + 2x + 2 - 2e^x}{x^3} = -\dfrac{1}{3}$.

Hint: While not required, you may use the Taylor series $e^x = 1 + x + \frac{1}{2}x^2 + \frac{1}{6}x^3 + \ldots$.

(b) (2 pt) Show that $\lim_{x \to 1} \dfrac{x^4 - 2x^3 + 2x - 1}{x^4 - 1} = 0$.

Hint: Note that $x = 1$ is a zero of the numerator, and $x = 1$ is a zero of the denominator.